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(54) FIBER MATERIAL PARTIALLY IMPREGNATED WITH A RESIN

(57) Abstract:

A partially impregnated preform employs a fiber layer partially impregnated with a resin to form a fiber reinforced resin composite. The fiber layer of the partially impregnated preform is formed of a plurality of parallel oriented tows, each tow formed of a plurality of unidirectional reinforcement fibers. The resin is partially impregnated on one or both faces of the fiber layer. A resin composition for partially impregnating a fiber layer of a preform is also provided. A stack of partially impregnated preforms utilizes a plurality of partially impregnated preforms. The stack of partially impregnated preforms may be cross-ply reinforced

by cross-ply stitching the stack of partially impregnated preforms together prior to curing to form a fiber reinforced resin composite upon curing. A method of forming a fiber reinforced resin composite including the steps of: enclosing a partially impregnated preform in a resin content control envelope; enclosing the resin content control envelope in a vacuum envelope; evacuating said vacuum envelope and said resin content control envelope; and heating while simultaneously evacuating the vacuum envelope and the resin content control envelope to melt and fully infuse the resin into said fiber layer and, then, to cure therein.

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